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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NGUYEN, MADELEINE ANH VINH

ART UNIT PAPER NUMBER

2626

DATE MAILED: 03/23/2004

5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/577,529

Applicant(s)

FISCHER ET AL.

Examiner

Madeleine AV Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-58 is/are pending in the application.
- 4a) Of the above claim(s) 57 and 58 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-17, 19-28, 30-35, 37-46, 48-54, 56 is/are rejected.
- 7) ☒ Claim(s) 10, 18, 29, 36, 47, 55 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-56, drawn to a method and apparatus which constrains a multi-dimensional color transformation for preventing of removal of selected color image data present in the source image and introduction of selected color image data not present in the source, classified in class 358, subclass 501.
 - II. Claims 57-58, drawn to a method which constrains a multi-dimensional color transformation for improving halftone dot integrity between a first color image data and a second color image data, classified in class 358, subclass 534.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has separate utility such as means or step of constraining the multi-dimensional color transformation to prevent removal of selected color image data present in the source image and introduction of selected color image data not present in the source; invention II has separate utility such as means or step of constraining the multi-dimensional color transformation to improve halftone dot integrity between a first color image data and a second color image data. See MPEP § 806.05(d).

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2. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

3. During a telephone conversation with Mr. Steven Shumaker on March 04, 2004 a provisional election was made with traverse to prosecute the invention of group I, claims 1-56. Affirmation of this election must be made by applicant in replying to this Office action. Claims 57-58 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-9, 11-17, 19-28, 30-35, 37-46, 48-54, 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stokes (US Patent No. 5,611,030).

Concerning claims 1, 6, 13, 15, Stokes discloses a method for multi-dimensional color transformation (Fig.3) comprising the steps of generating a multi-dimensional color transformation for transformation of a source image to a destination image (Map to in-gamut color); and constraining the multi-dimensional color transformation (remap more nearly ... anchor point)); (Abstract; col. 4, line 63 – col. 7, line 67; col. 8, lines 7-43).

Stokes does not directly teach that the constraining steps are to prevent removal of selected color image data present in the source image and to prevent introduction of selected color image data not present in the source image. However, Stokes teaches the mapping routine whereby an out-of gamut color A (selected color image data present in the source image) is mapped to an in-gamut color A' (selected color image data present in the destination image). If the color names of A and A' match (the selected color image data present in the source image is not removed), the result of the mapping are stored in the color lookup table. If the color names A and A' do not match (the introduction of selected color image data A' not present in the source image), the mapping is modified. In other words, for the color gamut mapping arrangement, when an out-of gamut color within one color name boundary is mapped to an in-gamut color within a different color name boundary, a color name boundary violation is occurred and the mapping is modified to prevent the violation. A first mapping constrain for determining whether the color names A and A' are the same name is equivalent to the step of constraining the multi-dimensional color transformation to prevent removal of selected color image data present in the source image since there is no removal of selected color image data present in the source image. A second mapping constrain for modifying the mapping routine when the color names of A and A' are different is equivalent to the step of constraining the multi-dimensional color

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transformation to prevent introduction of selected color image data not present in the source image since the modified mapping is for reaching a destination color name A' having the same source color name A to prevent the adding of a selected color image not present in the source image (Figs.2-3; col. 3, line 49 – col. 4, line 2; col. 4, line 63 – col. 5, line 12; col. 5, line 51 – col. 8, line 17). It would have been obvious to one skilled in the art to consider Stokes indirectly teaches the 2 steps of constraining the multi-dimensional color transformation to prevent removal of selected color image data present in the source image and to prevent introduction of selected color image data not present in the source image as claimed in claims 1 and 6 since Stokes teaches the detection of color name boundary violation and the modification of the mapping process so that the source color A maps to a destination color A' having the same color name such that there is no removal of selected color image data present in the source image and there is no introduction of selected color image data not present in the source image.

Concerning claims 2-5, 7-9, 11-12, 14, 16, 17 Stokes further teaches that the multi-dimensional color transformation is configured based on the constraints imposed in step (b) (whether the mapping to in-gamut color process has the same name in case of out-of gamut); the steps of constraining is to prevent removal of selected colorants present at corresponding dots in the source image, or to prevent removal of black colorant present at corresponding dots in the source image, or to prevent the removal of one or more chromatic colorants present at corresponding dots in the source image (claims 3-5); the steps of constraining is to prevent addition of selected colorants present at corresponding dots in the source image, or to prevent addition of black colorant present at corresponding dots in the source image, or to prevent addition of one or more chromatic colorants present at corresponding dots in the source image

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(claims 7-9, 16, 17); the constraining steps are based at least in part on constraints specified by a user (Abstract; col. 3, lines 57-61; col. 4, lines 25-31); the source and destination images is defined by cyan, magenta, yellow and black colorants.

Concerning claims 20, 25, 31, 33, Stokes discloses a system (col. 3, lines 37-42; col. 4, lines 25-35) for multi-dimensional color transformation comprising a processor that generates a multi-dimensional color transformation for transformation of a source image to a destination image; and a memory (for storing programs) that stores constraints; wherein the processor is programmed to apply the constraints to constrain the multi-dimensional color transform as discussed in claims 1 and 6 above.

Concerning claims 21, 22-24, 26-28, 30, 32, 34-35, 37, Stokes further teaches that the multi-dimensional color transformation is configured based on the constraints applied by the processor; the processor constrains the multi-dimensional color transform to prevent removal of selected colorants present at corresponding dots in the source image, or to prevent removal of black colorant present at corresponding dots in the source image, or to prevent the removal of one or more chromatic colorants present at corresponding dots in the source image (claims 22-24,); the steps of constraining is to prevent addition of selected colorants present at corresponding dots in the source image, or to prevent addition of black colorant present at corresponding dots in the source image, or to prevent addition of one or more chromatic colorants present at corresponding dots in the source image (claims 26-28, 34-35); the constraining steps are based at least in part on constraints specified by a user (Abstract; col. 3, lines 57-61; col. 4, lines 25-31); the source and destination images is defined by cyan, magenta, yellow and black colorants.

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Concerning claims 38-46, 48-49, 50-54, 56, Stokes discloses a computer-readable medium (col. 3, lines 37-42; col. 4, lines 25-35) containing program code that when executed by a processor comprises the steps as discussed in claims 1-9, 11-12 above.

Allowable Subject Matter

7. Claims 10, 18, 29, 36, 47, 55 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter: Claims 10, 18, 29, 36, 47, 55 are allowable over the prior art of record because the Examiner found neither prior art cited in its entirety, nor based on the prior art, found any motivation to combine any of the said prior art which teaches a system and method for multi-dimensional color transformation comprising means for or step of constraining the multi-dimensional color transformation to prevent introduction of selected color image data not present in the source image which is the addition of chromatic colorants for black-only dots in the source image.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Adler et al (US Patent No. 6,603,573) discloses a method and apparatus for halftoning digital images renders color data subject to constraints on the number of colorants.

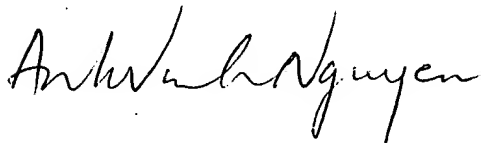
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b. Samadani (US Patent No. 6,331,899) recites a method and apparatus that from a set of critical colors determines a set of constraints of the output device and simulated device colorants that is used for the minimization.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Madeleine AV Nguyen whose telephone number is 703 305-4860. The examiner can normally be reached on 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly A Williams can be reached on 703 305-4863. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Madeleine AV Nguyen
Primary Examiner
Art Unit 2626

March 16, 2004